EXTREME FLIGHT RADIO CONTROL™

STATE-OF-THE-ART R/C AEROBATIC AIRCRAFT AND ACCESSORIES

YAK-55SP-ELECTRIC ARF

Instruction Manual

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Thank you for your purchase of the Extreme Flight RC Yak-55SP-E ARF! Please take a few moments to read this instruction manual before beginning assembly. We have outlined a fast, clear and easy method to assemble this aircraft and familiarizing yourself with this process will aid in a quick, easy build.

Please read the following paragraph before beginning assembly of your aircraft!
THIS IS NOT A TOY! Serious injury, destruction of property, or even death may result from the misuse of this product. Extreme Flight RC is providing you, the buyer with a very high quality model aircraft component kit, from which you, the buyer, will assemble a flying model. However it is beyond our control to monitor the finished aircraft you produce. Extreme Flight RC will in no way accept or assume responsibility or liability for damages resulting from the use of this user assembled product. This aircraft should be flown in accordance to the AMA safety code. It is highly recommended that you join the Academy of Model Aeronautics in order to be properly insured. If you are not willing to accept ALL liability for the use of this product, please return it to the place of purchase immediately.

Extreme Flight RC, Ltd. guarantees this kit to be free of defects in materials and workmanship for a period of 90 days from the date of purchase. All warranty claims must be accompanied by the original dated receipt. This warranty is extended to the original purchaser of the aircraft kit only.

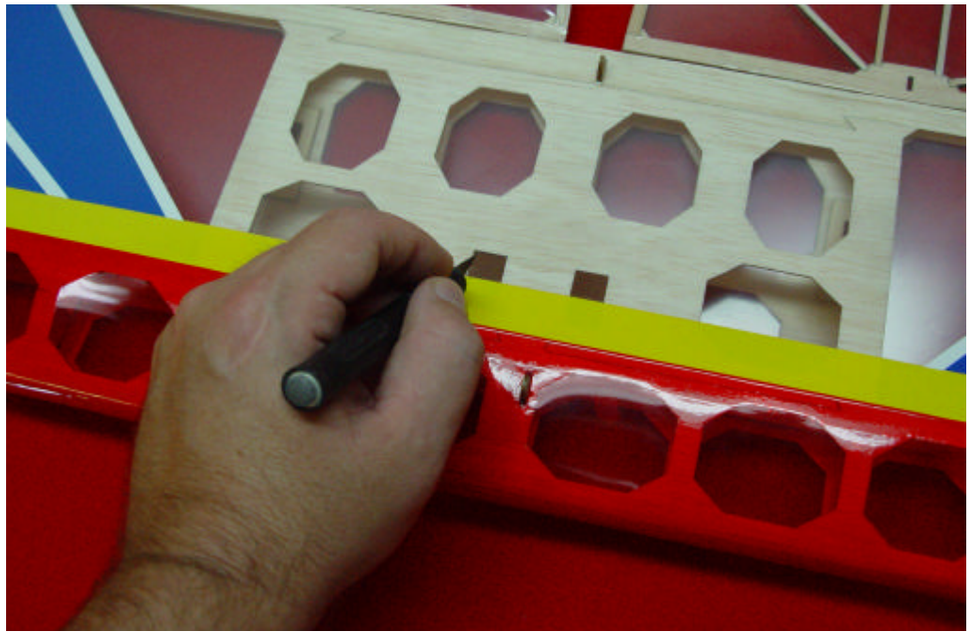
Extreme Flight RC in no way warranties its aircraft against flutter. We have put these aircraft through the most grueling flight tests imaginable and have not experienced any control surface flutter. Proper servo selection and linkage set-up is absolutely essential. Inadequate servos or improper linkage set up may result in flutter and possibly the complete destruction of your aircraft. If you are not experienced in this type of linkage set-up or have questions regarding servo choices, please contact us. It is your responsibility to ensure the airworthiness of your model.
Designed to take full advantage of the latest in brushless motor and lithium battery technology, the Yak 55 will provide all the 3D thrills you can handle without breaking the bank. Your backyard or local school playground is all the room you need to perform any maneuver you can think of. When powered with the Extreme Flight RC BL-20 brushless motor and speed controller the Yak-55 is truly unlimited in its 3D performance ability. The lightweight yet robust airframe eliminates the tail twisting associated with “foamy” 3D aircraft, and the built up symmetrical airfoil wing provides stability in high alpha attitudes.
By the time the Yak arrives in your shop, it will have endured several climate changes. As a result you may find some wrinkles in the covering. This is not a manufacturing defect. Please take a few moments with your iron or heat gun and remove any wrinkles. Iron over all the edges to ensure they are sealed. Also because of the super lightweight structure, these climate changes may cause some of the control surfaces to twist or bow slightly. This condition is also easily remedied with a heat gun or iron. Just take your time and have a friend assist you in twisting the surface to its proper shape while you add heat from the heat gun. You may find the need to do this periodically, especially if you leave the Yak inside a hot car.

Additional Items needed to complete assembly

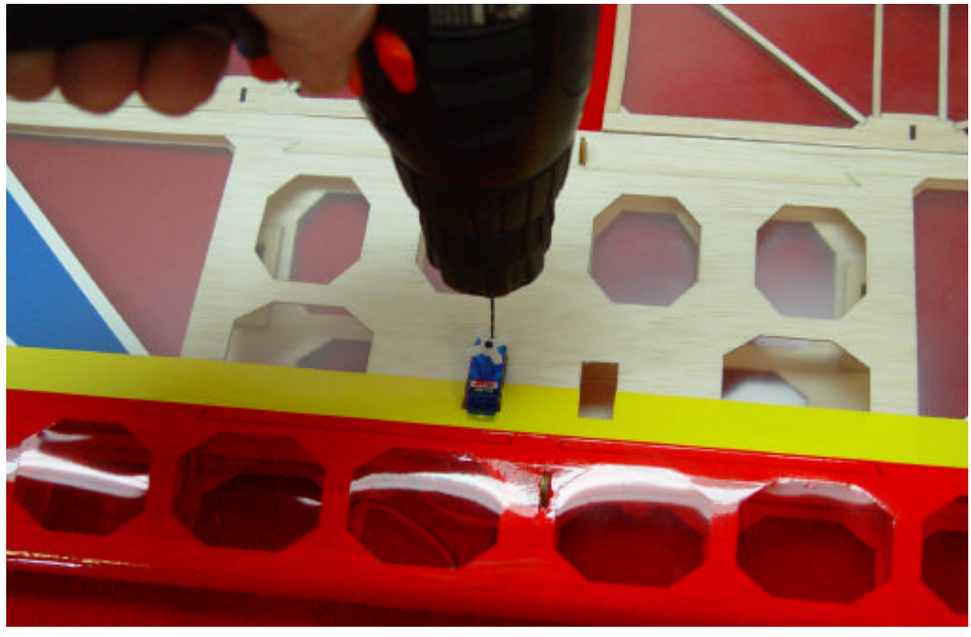
4 sub micro servos (we use and recommend the Hitec HS-55)
1 micro receiver (the Hitec Electron 6 is our choice)
3S1P Lithium Polymer battery pack (we use the Thunder Power 1320 mah pack)
Connectors for attaching the battery to the ESC (we use the JST style connector)

Wing assembly

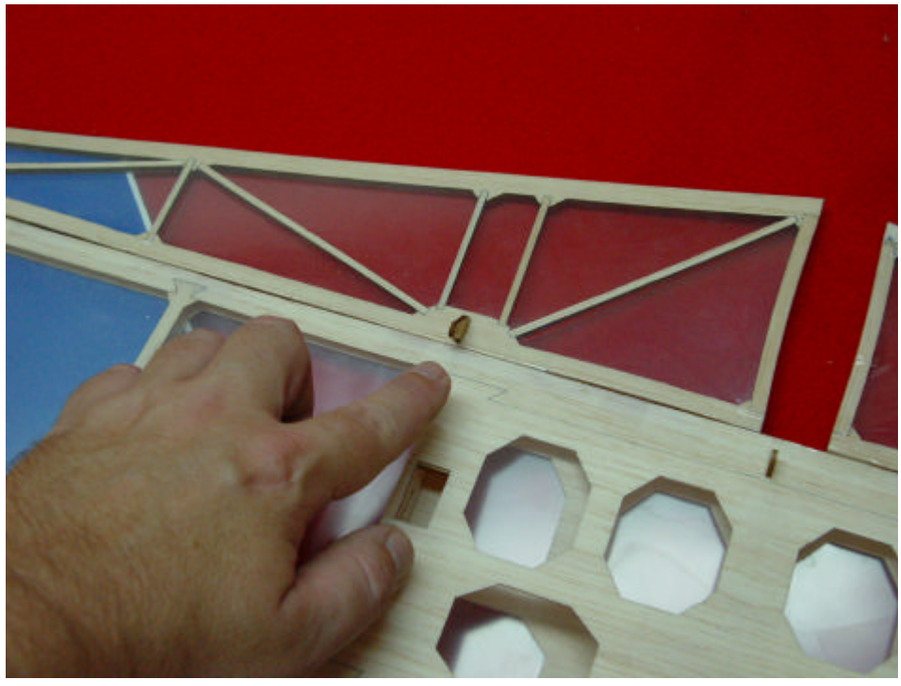
1. Use a #11 hobby blade to remove the covering from the 4 servo holes in the wing (two on top and two on the bottom).



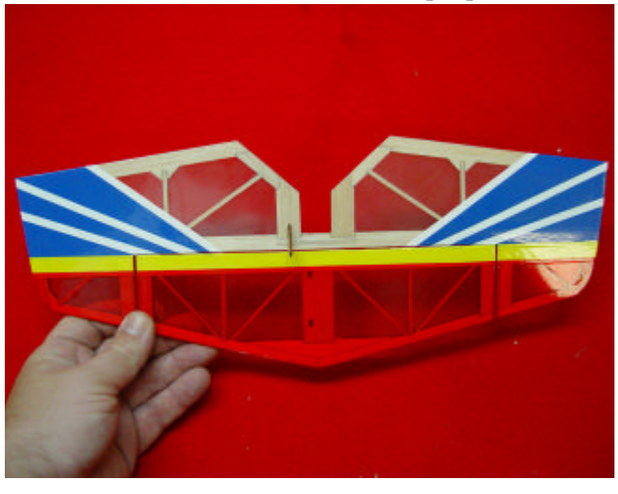
2. Using the manufacturer's supplied hardware, mount 4 servos into the wing with the ouput splines to the rear (again, two on the top and two on the bottom).

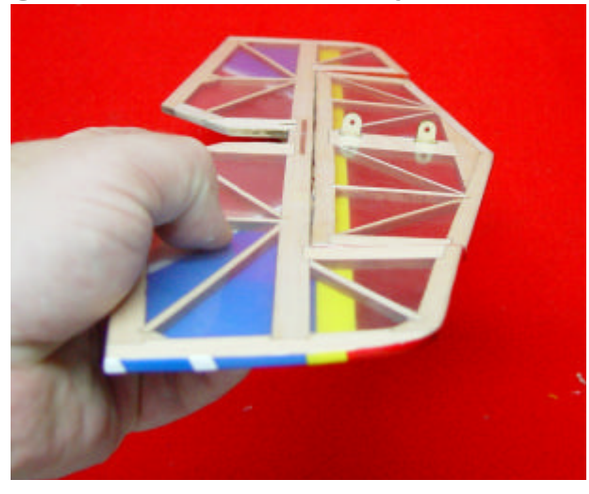


3. Turn the wing over and remove the covering from the 2 rectangular holes in the aileron (one per aileron). Use some medium CA to glue the laser cut plywood control horns in place, making sure that they are perpendicular to the aileron. Put the wing aside for now.

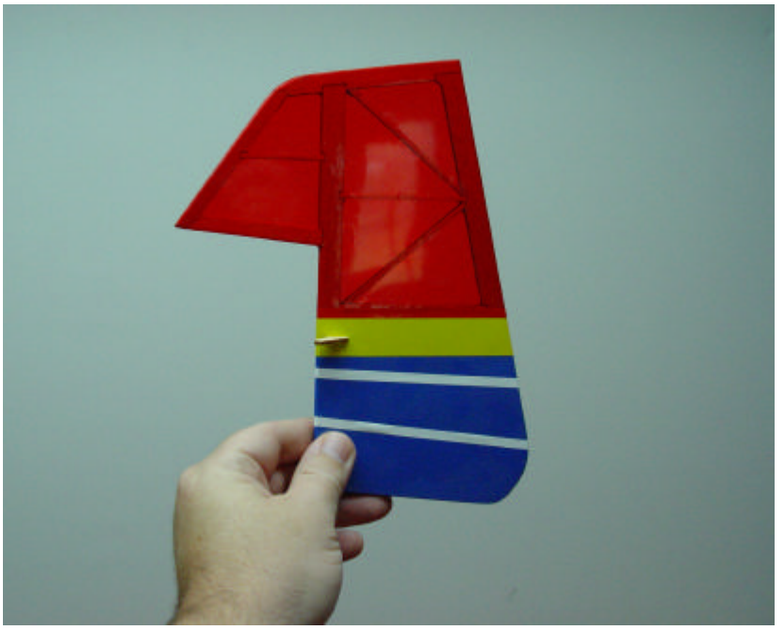


4. Locate the pre-hinged horizontal stabilizer/elevator assembly. As you did on the aileron, remove the covering from the rectangular holes in the stab and elevator (two on the bottom of the stab, one on the top of the elevator). Use medium CA to glue the laser cut control horn into the **TOP** of the elevator, making sure it is perpendicular to the elevator. Glue the two stabilizer retention tabs into the **BOTTOM** of the stab. It is critical that these two tabs are perpendicular to the bottom of the stab to insure proper stab/fuse alignment. Set aside this assembly for now.



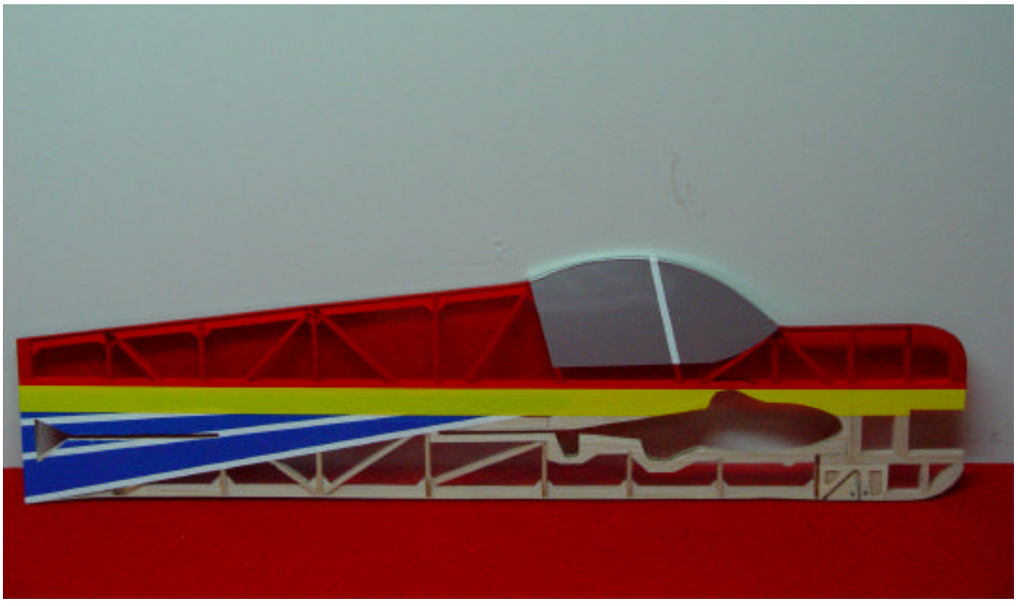


5. Locate the rudder and the remaining laser cut plywood control horn. Remove the covering from the rectangular hole in the **LEFT** side of the rudder. Using medium CA, glue the conrol horn into the slot on the **LEFT** side.



6. Use a sharp #11 hobby blade to make two slots in the leading edge of the rudder and two corresponding slots in the rear post of the fuselage. One slot should be approximately 1/4” from the bottom of the rudder, the other approximately 1/4” below the counter balance. Use the two supplied CA hinges to attach the rudder to the rear of the fuselage. Use thin CA to secure the hinges.

7. Using a sharp #11 hobby knife, remove the covering from the wing and stabilizer slots. Use a sealing iron to secure any loose edges.



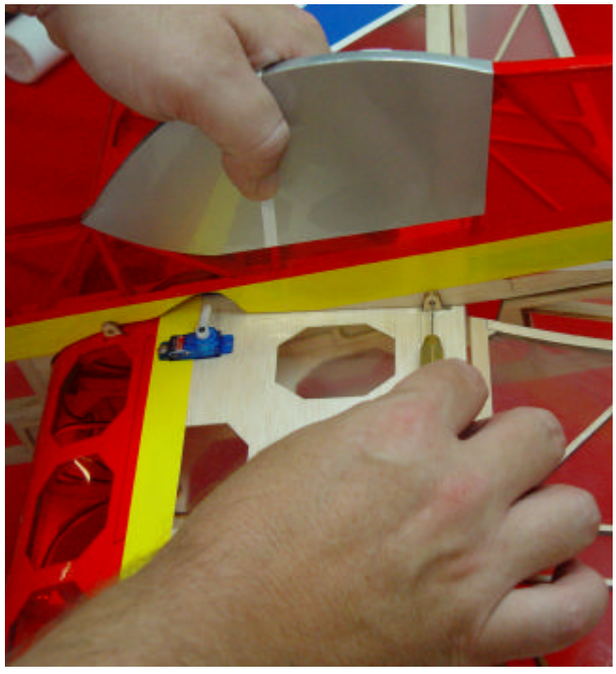
8. Trial fit the wing and stab into the fuselage. Once you slide the stab into the fuselage slot, slide it to the rear of the slot, leaving just enough room for the elevator to clear the rear post, allowing uninhibited movement of the elevator. Slide the wing forward so that the leading edge touches the front of the wing slot.

9. Using a straight edge and an indelible ink marker, draw a line on the side of the fuselage from the servo horn on the servo in the top of the wing to the elevator horn. Do the same on the other side for the rudder. Remove the wing and stab for now.

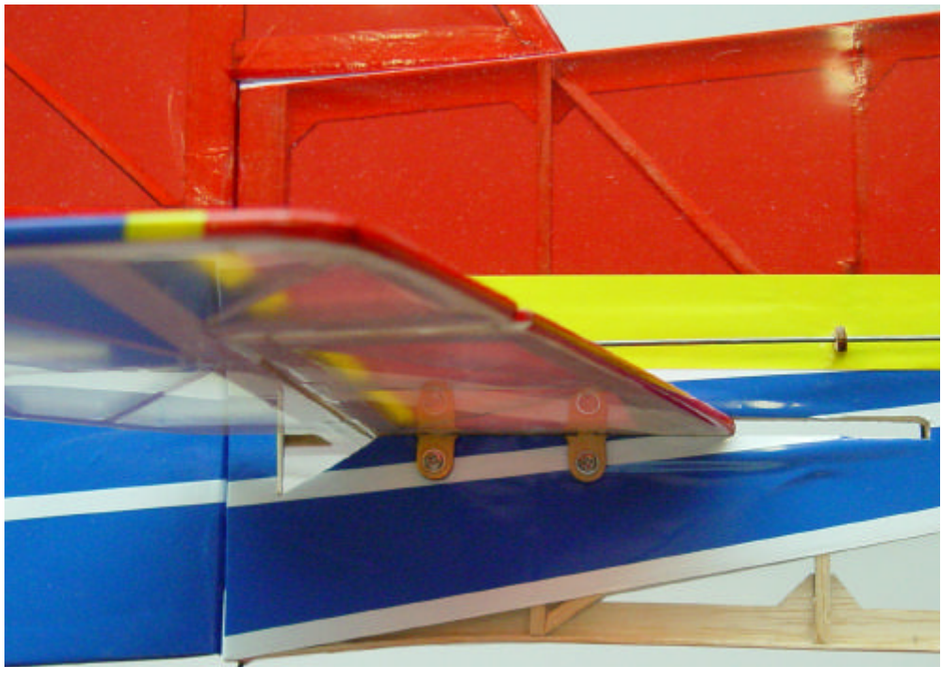
10. Locate the 8 laser cut plywood pushrod guides. You will use four for each side.

11. Using the lines you have drawn as a reference, use your hobby knife or a fine tipped soldering iron to open 4 small holes in the covering on each side of the fuselage at the vertical cross member. Use medium CA to glue the pushrod guides to the vertical cross member. Use the picture below for reference.

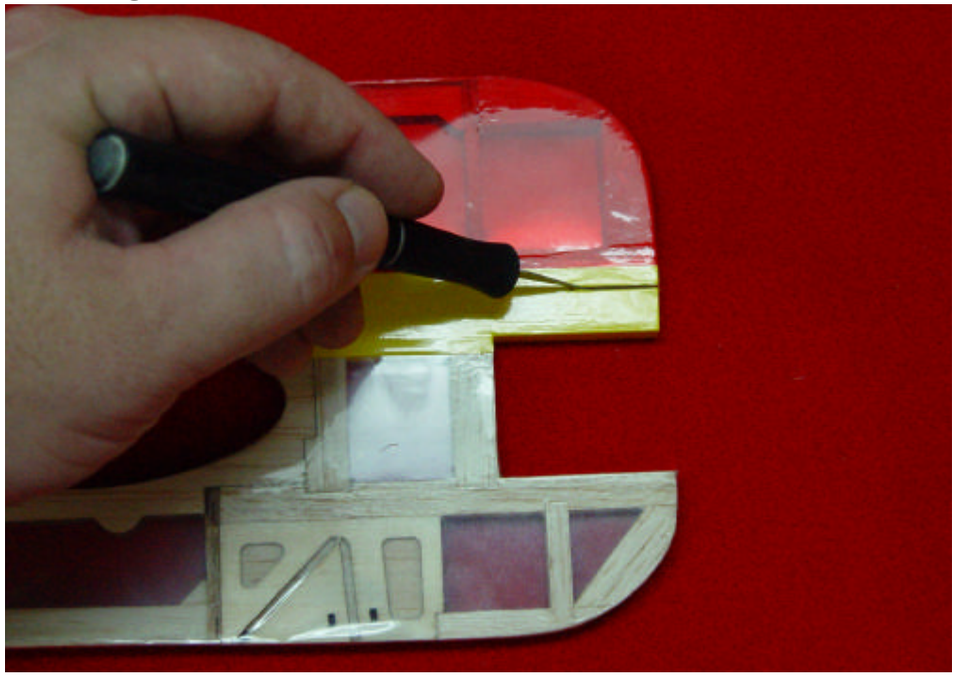
12. Repeat this procedure on the other side of the fuselage for the rudder pushrod.
13. Re-install the wing and horizontal stab into fuselage. Use a 1/16th" twist drill bit to drill through the fuselage at the four wing mounting tabs and the two stab mounting tabs. Glue the 4 plastic wing screw retainers to the fuselage with medium CA.



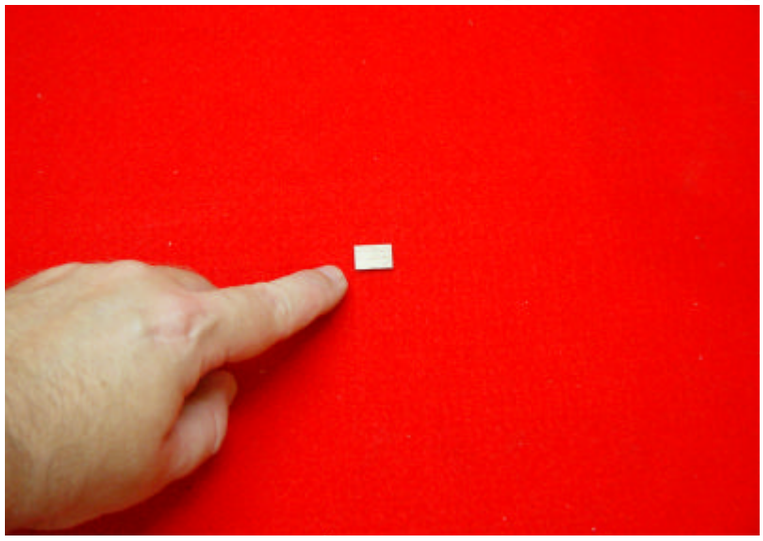
14. Attach the wing using 4 of the wood screws that are provided in the hardware package. The screw should be inserted through the wing mounting tab, through the fuselage and secure itself in the plastic wing screw retainers that you just glued in place in the previous step.
15. Repeat this step for the stab, although we do not use a plastic screw retainer for these screws. You may want to wick a drop of thin CA into the two holes in the fuselage before inserting the two stab retaining screws.



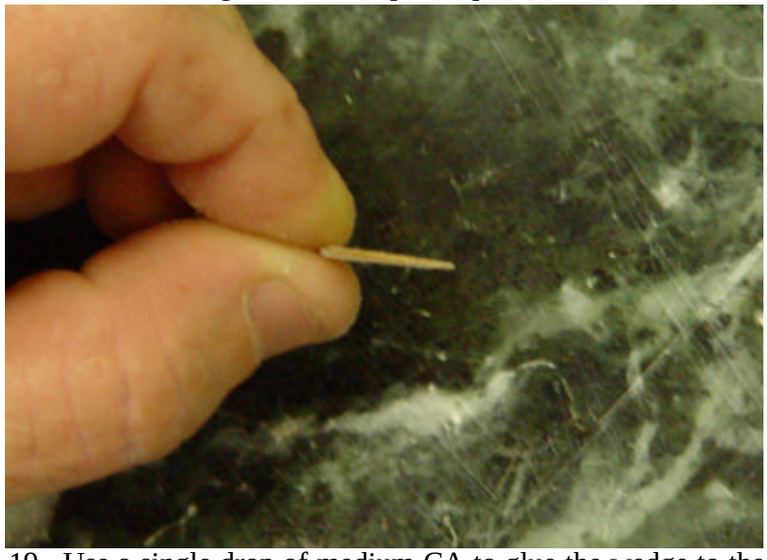
16. Use a sharp #11 hobby knife to remove the covering from the gearbox slot at the front of the fuselage.



17. Locate the small 1/16th balsa rectangle in the hardware package.

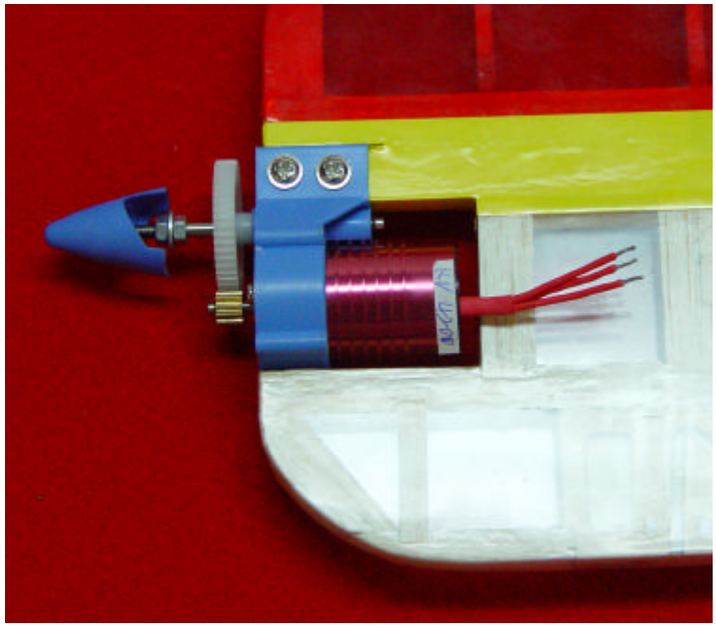


18. Use a sanding block to shape the piece of balsa into a wedge.

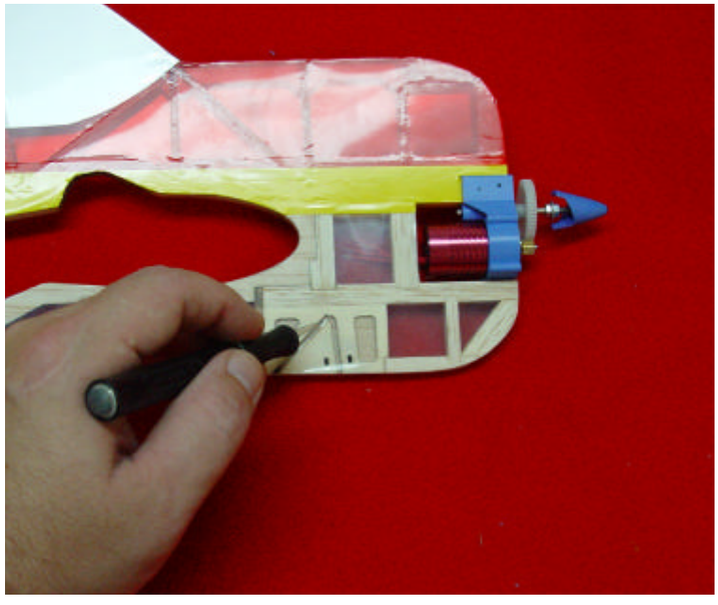


19. Use a single drop of medium CA to glue the wedge to the front of the fuselage.This will provide you with a small amount of right thrust to counteract the spiral slipstream effect. Just use a small drop of glue directly on the covering as you may wish to remove the wedge to alter the amount of right thrust as you trim your Yak or if you change prop sizes.

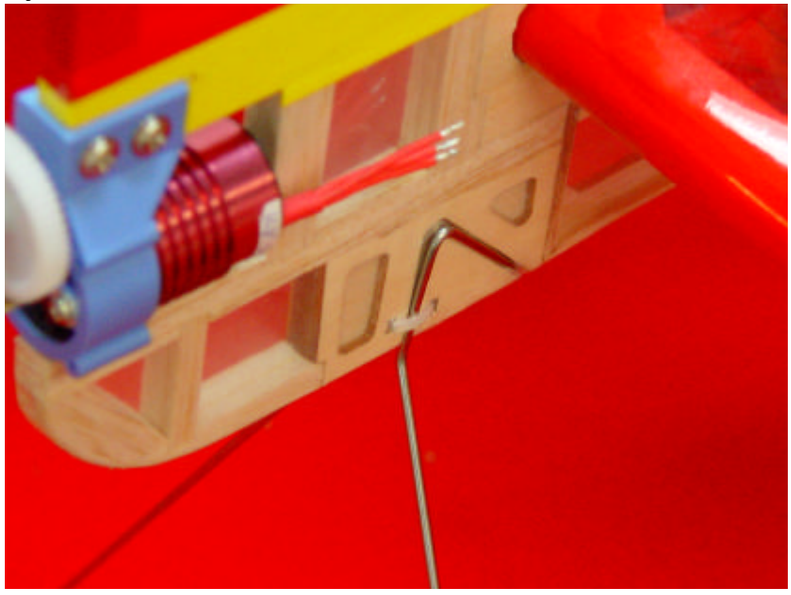
20. Slide the motor/gearbox assembly onto the front of the fuselage, and press it flush against the balsa wedge. When viewed from the top the motor/gearbox should be angled to the right by about 2 degrees. Drill 2 1/16th“ holes through the gearbox and into the mounting beam. Insert the 2 woodscrews with the large heads into these holes and tighten until snug.



21. Use your #11 blade to open the landing gear slot on the bottom front of the fuselage.



22. Insert the pre-formed wire landing gear into the slot and secure with one of the supplied nylon cable ties.

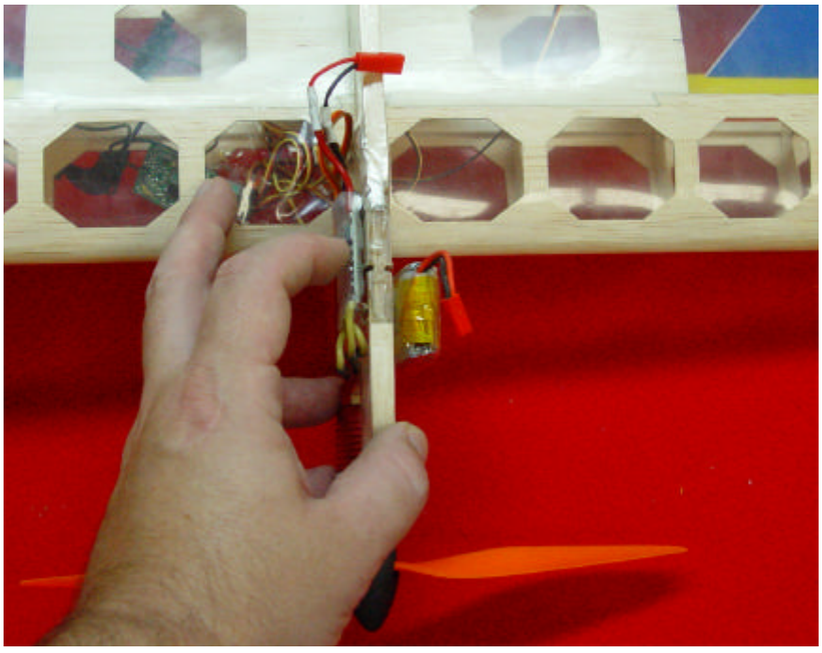


23. Slide the wheels onto the wire landing gear, and secure plastic wheel retainer with a drop of CA.

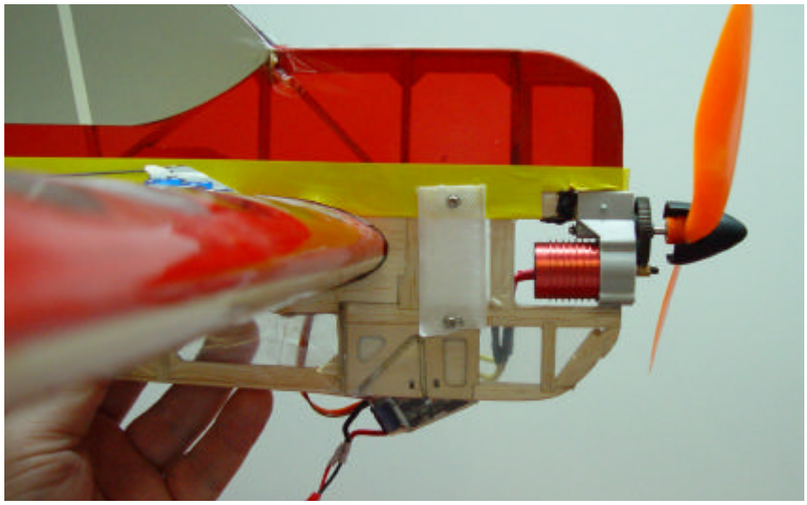
A few words about the landing gear

If you fly from a grass field we highly recommend that you leave the landing gear off of the Yak. It is better to slide the plane in on its belly in the grass. The landng gear tend to get caught in the grass and cause the plane to flip over. Save the landing gear for indoor flying from a smooth surface.

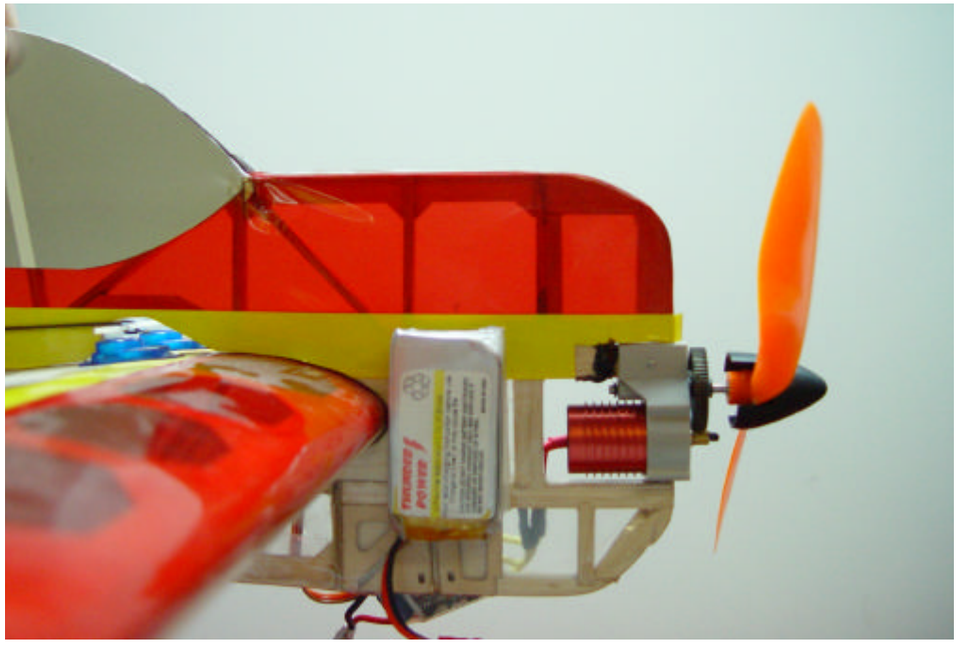
24. If you are using a motor and ESC from another manufacturer please follow their instructions for attaching these units to each other and the plane. If using the Extreme Flight BL-20 brushless motor and speed controller, please refer to the instruction addendum at this time.
25. Turn the Yak over and remove the covering from the lightening hole nearest the fuselage on the left side (as viewed from the bottom front). Pull all of the servo wires through this hole and attach them to their intended slots in your receiver. Also plug the "JR" style connector from the ESC into the throttle port on the receiver. Install the receiver into the wing cavity using your preferred method to secure it (We use Velcro or double sided tape). Use the piece of clear covering from the hardware package to cover the hole in the bottom of the wing. Make sure to cut a small hole to allow the lead for the ESC. You may choose to mount the on/off switch of the ESC in the leading edge or just leave it free floating. Just make sure you can access it easily. Use a piece of velcro or double sided tape to secure the ESC to the lower forward area of the fuselage.



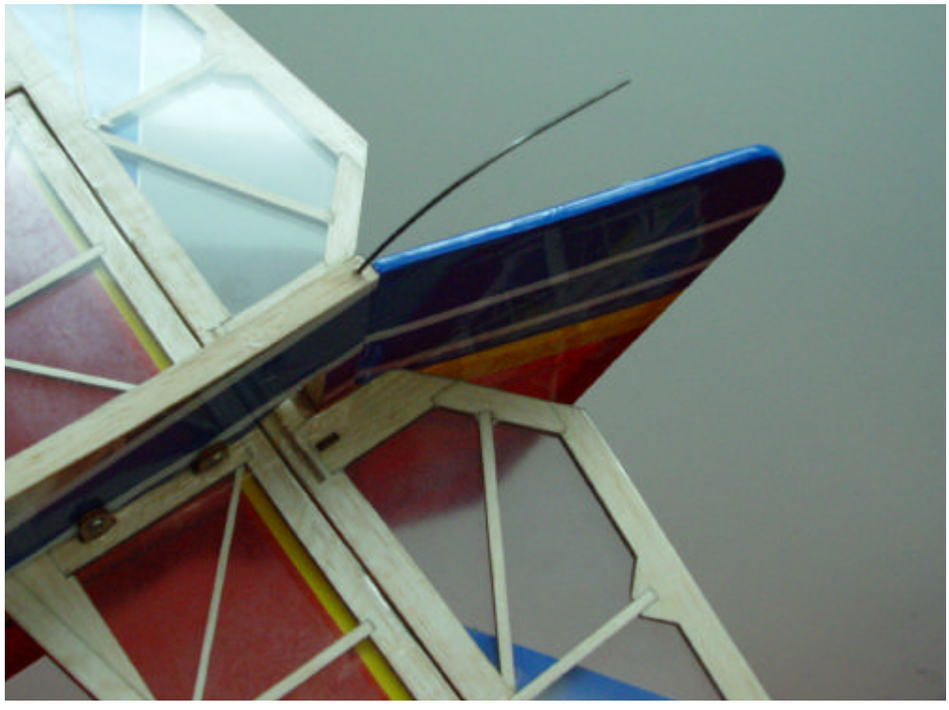
26. Use some medium CA along with the 2 remaining wood screws to secure a piece of the supplied Velcro to the fuselage just in front of the wing.



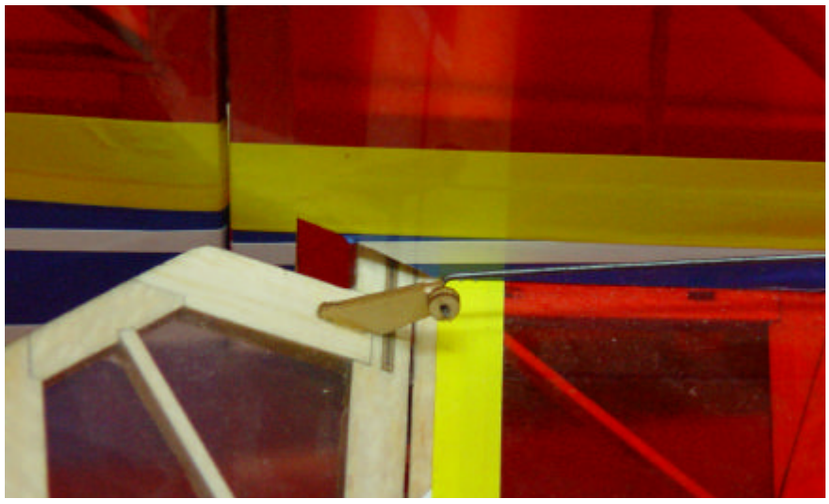
27. Glue a strip of Velcro to the back of your battery and mount as shown.



28. Drill a small hole in the rear bottom of the fusleage and install the pre-bent wire tail skid. Secure with a drop of CA.



29. Slide the 2 long wire pushrods through the pushrod guides from the front. You will attach the pre-bent “z-bend” at the servo arm and make a 90 degree bend on the other end at the control horn on the control surface. Push the wire through the hole in the control horn and retain with one of the small laser cut plywood rings. Secure with a drop of CA. Use this same process for both the elevator and rudder.



30. Use the 2 shorter pushrods for the aileron linkages and use the same procedure as outlined above.

This concludes the assembly process. Please be sure to read the additional document which includes directions for the ESC. Please note that the default settings for the speed controller are the ideal settings for this particular application. No programming is required to achieve optimum results from this power package.

Set-up and Flight Trimming

Please devote the first couple of flights to dialing in your Yak. The CG range for the Yak that we have found to be ideal starts at 3.25" from the leading edge of the wing and extends to 3.75" from the leading Edge of the wing.. Also take the time to balance your Yak laterally. Make sure you do this with the battery attached to the fuselage.

Following are the recommended control surface throws:
Elevator: 10 degrees low rate Maximum deflection possible for high rate.
Rudder: 15 degrees low rate Maximum deflection possible for high rate.
Ailerons: 10 degrees low rate Maximum deflection possible for high rate.
I recommend that you use a fair amount of exponential for your high rate settings to soften the feel around neutral stick position. My preference is 65% on elevator, 75% on aileron, and 80% on rudder. These settings will vary among pilots, but these suggestions are a good place to start. Adjust to suit your feel.

Thanks again for your business, and I hope you enjoy flying the Yak-55SP-E as much as we have. See ya at the flying field!